

TRANSLATION

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference 0000055294 | FOR FURTHER ACTION | See Form PCT/IPEA/416 |
| International application No. PCT/EP2005/000717 | International filing date (day/month/year) 26.01.2005 | Priority date (day/month/year) 29.01.2004 |
| International Patent Classification (IPC) or national classification and IPC C07C253/10 C07C253/30 | | |
| Applicant BASF AKTIENGESELLSCHAFT | | |

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☒ (sent to the applicant and to the International Bureau) a total of 4 sheets, as follows:

☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

| | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

| | |
|---|-----------------------------------|
| Date of submission of the demand | Date of completion of this report |
| Name and mailing address of the IPEA/EP | Authorized officer |
| Facsimile No. | Telephone No. |

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2005/000717

Box No. I

Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-34 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-12 _____ received by this Authority on 28.11.2005 with letter
- nos.* _____ received by this Authority on of 23.11.2005
- ☒ the drawings:
- sheets 1/2-2/2 _____ as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2005/000717

| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | |
|--|---|-------------|-----|
| 1. Statement | | | |
| Novelty (N) | Claims | <u>1-12</u> | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | <u>1-12</u> | YES |
| | Claims | | NO |
| Industrial applicability (IA) | Claims | <u>1-12</u> | YES |
| | Claims | | NO |
| 2. Citations and explanations (Rule 70.7) | | | |
| 1. This report makes reference to the following documents: | | | |
| D1 = WO-A-03/011457 | | | |
| D2 = US-A-6 242 633 | | | |
| D3 = US-A-2001/0014647 | | | |
| D4 = FR-A-2 830 530 | | | |
| D5 = DE-A-100 46 025 | | | |
| D6 = US-A-3 496 215 | | | |
| 2. Claim 1 of the application relates to a method for producing adipodinitrile by hydrocyanation of 1,3-butadiene in which two consecutive hydrocyanations take place, characterized in that a catalyst from at least one of the method steps is transferred to the other method step. Steps (a) to (e) are cited and comprise the method. | | | |
| 3. The prior art does not contain a prior description of steps (b), (c) and (e). Therefore, claim 1 meets the requirements of PCT Article 33(2). | | | |

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

4. One of the problems to be solved by the present application is that of providing an integrated method for producing adipodinitrile by double hydrocyanation of 1,3-butadiene that enables the catalyst cycles of the two hydrocyanations to be connected during the production of adipodinitrile. The solution is the method according to claim 1, in particular steps (b), (c), and (e), and the indication that the catalyst from at least one step is transferred to the other method step.
5. Although the prior art describes hydrocyanation methods, it never describes a method with all of the technical features of claim 1. The advantage of the method is that the same Ni(O) catalyst can be used in all of the method steps (with the addition of Lewis acid in the second hydrocyanation step), and the catalyst can be transferred to the other method step, even from method step (e) back to step (a). The cited prior art contains nothing relating to this procedure that could have led a person skilled in the art to the present method. Therefore the method according to claim 1 meets the requirements of PCT Article 33(3).
6. Claims 2-12 are dependent on claim 1 and therefore likewise meet the PCT requirements

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement.

for novelty and inventive step.

7. Contrary to the requirements of PCT Rule 5.1(a)(ii), the description neither cites documents D1-D6 nor indicates the relevant prior art contained therein.